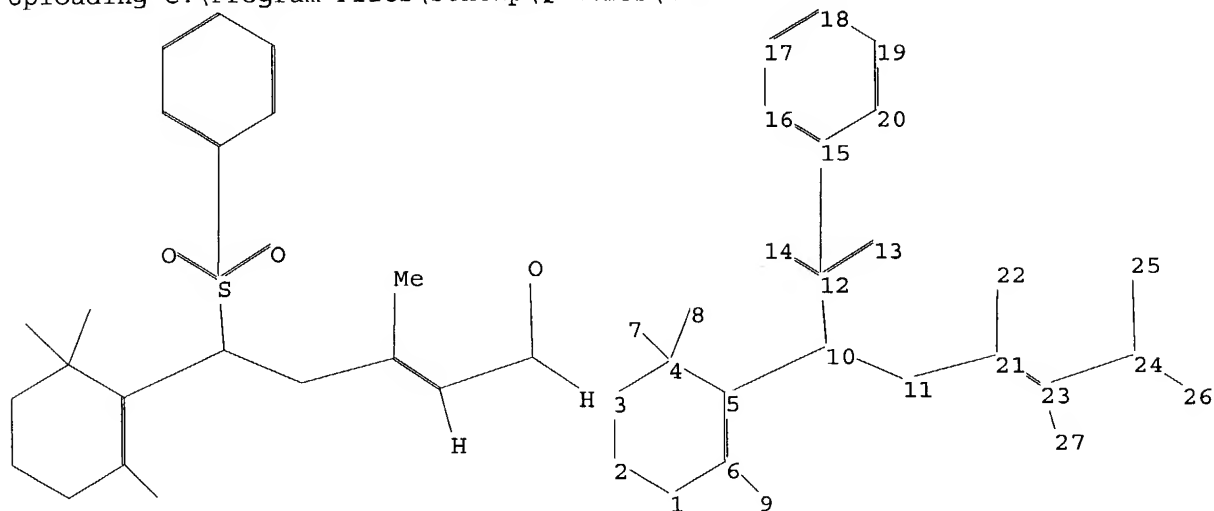


>  
Uploading C:\Program Files\Stnexp\Queries\10687880.str



chain nodes :

7 8 9 10 11 12 13 14 21 22 23 24 25 26 27

ring nodes :

1 2 3 4 5 6 15 16 17 18 19 20

chain bonds :

4-7 4-8 5-10 6-9 10-11 10-12 11-21 12-13 12-14 12-15 21-22 21-23 23-24  
23-27 24-25 24-26

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 15-16 15-20 16-17 17-18 18-19 19-20

exact/norm bonds :

1-2 1-6 2-3 3-4 4-5 5-6 10-12 12-13 12-14 12-15 24-25

exact bonds :

4-7 4-8 5-10 6-9 10-11 11-21 21-22 21-23 23-24 23-27 24-26

normalized bonds :

15-16 15-20 16-17 17-18 18-19 19-20

Match level :

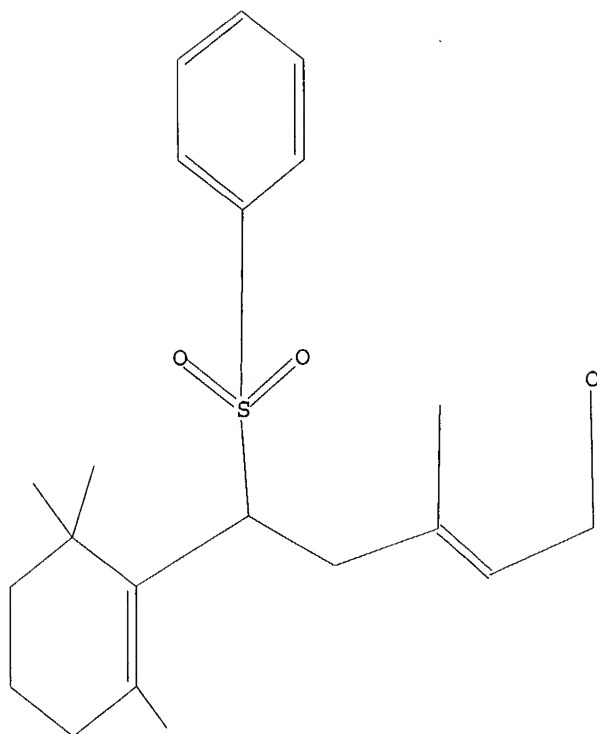
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS 10:CLASS  
11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom  
20:Atom 21:CLASS  
22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS 27:CLASS

L1 STRUCTURE UPLOADED

=> d

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 15:12:09 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 8 TO ITERATE

100.0% PROCESSED 8 ITERATIONS 0 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 8 TO 329  
PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s l1 full

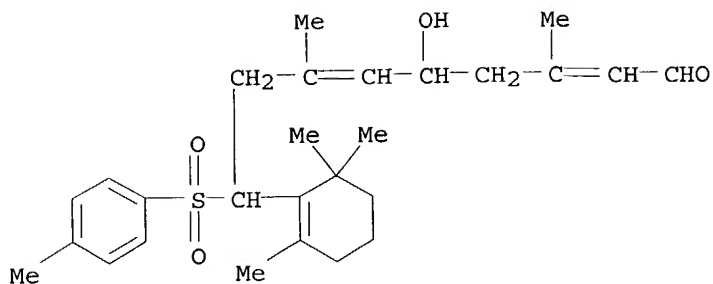
FULL SEARCH INITIATED 15:12:15 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 232 TO ITERATE

100.0% PROCESSED 232 ITERATIONS 32 ANSWERS  
SEARCH TIME: 00.00.01

L3 32 SEA SSS FUL L1

=> d scan

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinal, 7,8,11,12-tetrahydro-11-hydroxy-7-[(4-methylphenyl)sulfonyl]-,  
(9Z,13Z)- (9CI)  
MF C27 H38 O4 S

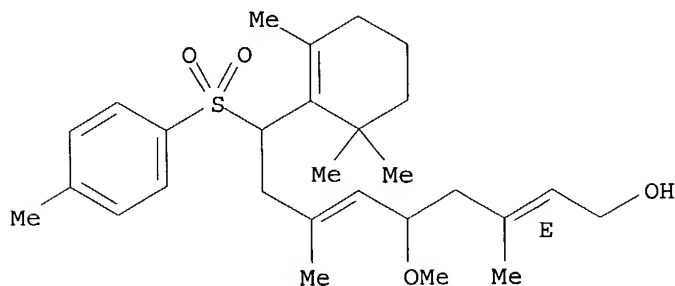


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

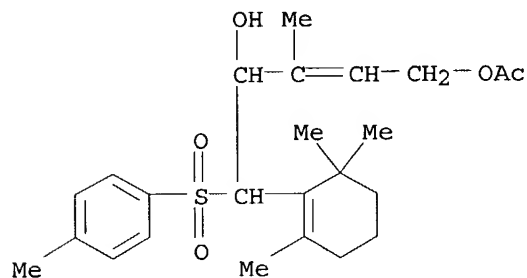
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Retinol, 7,8,11,12-tetrahydro-11-methoxy-7-[(4-methylphenyl)sulfonyl]-,  
 (9Z)- (9CI)  
 MF C28 H42 O4 S

Double bond geometry as described by E or Z.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

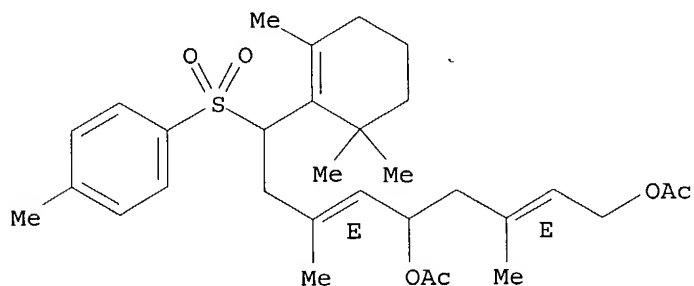
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN 2-Pentene-1,4-diol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 1-acetate (9CI)  
 MF C24 H34 O5 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-  
, acetate (9CI)  
MF C31 H44 O6 S

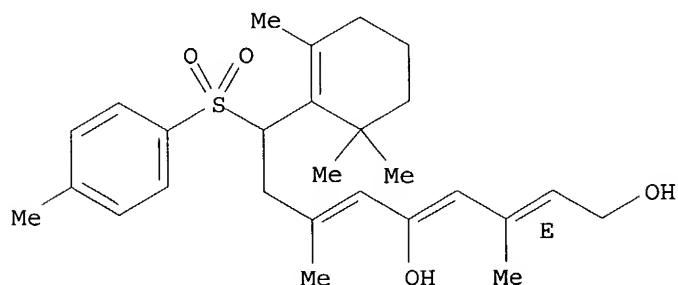
Double bond geometry as shown.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

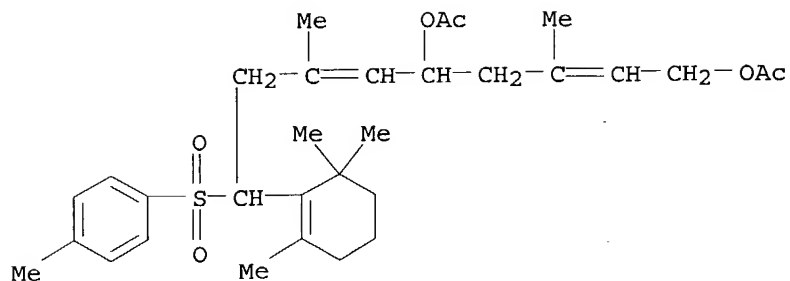
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinol, 7,8-dihydro-11-hydroxy-7-[(4-methylphenyl)sulfonyl]-,  
(9?,11?)-(+)- (9CI)  
MF C27 H38 O4 S

Double bond geometry as described by E or Z.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

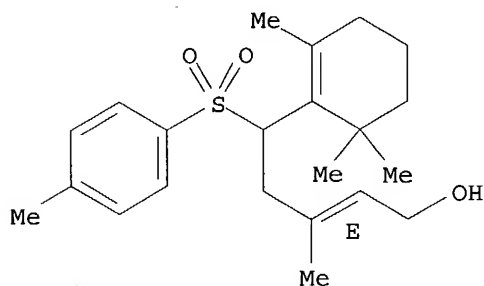
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-  
, acetate, (9ξ,13ξ)- (9CI)  
MF C31 H44 O6 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, (2E)-(9CI)  
 MF C22 H32 O3 S

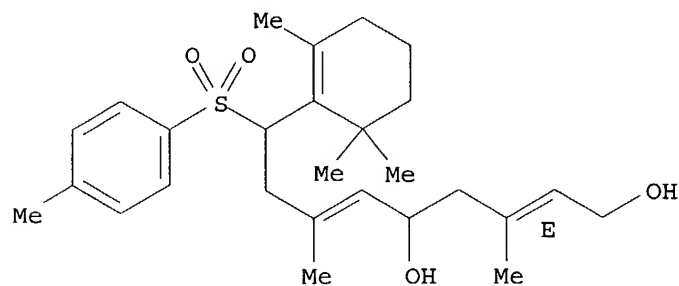
Double bond geometry as shown.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

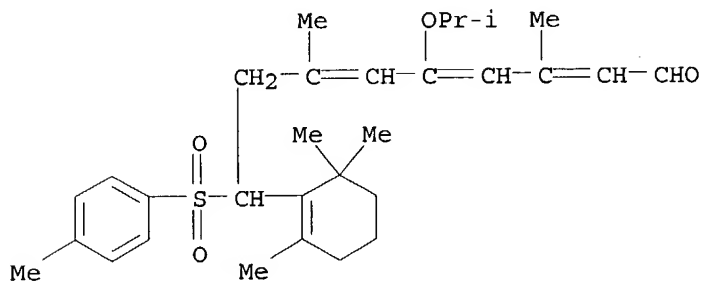
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Retinol, 7,8,11,12-tetrahydro-11-hydroxy-7-[(4-methylphenyl)sulfonyl]-, (9?)-(9CI)  
 MF C27 H40 O4 S

Double bond geometry as described by E or Z.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

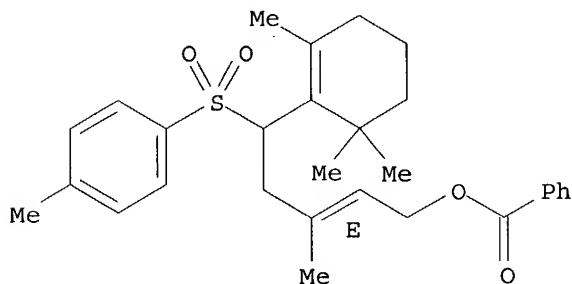
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Retinal, 7,8-dihydro-11-(1-methylethoxy)-7-[(4-methylphenyl)sulfonyl]-,  
 (9?,11?,13?)-(+)- (9CI)  
 MF C30 H42 O4 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, benzoate, (2E)- (9CI)  
 MF C29 H36 O4 S

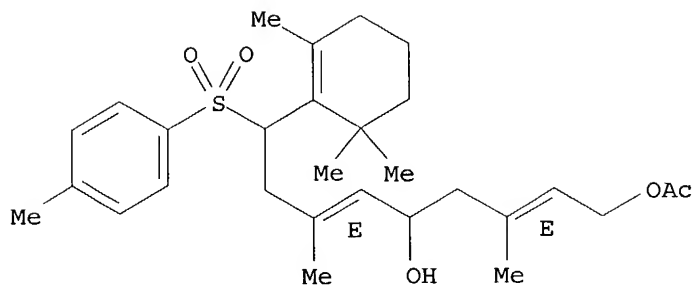
Double bond geometry as shown.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Retinol, 7,8,11,12-tetrahydro-11-hydroxy-7-[(4-methylphenyl)sulfonyl]-,  
 15-acetate (9CI)  
 MF C29 H42 O5 S

Double bond geometry as shown.

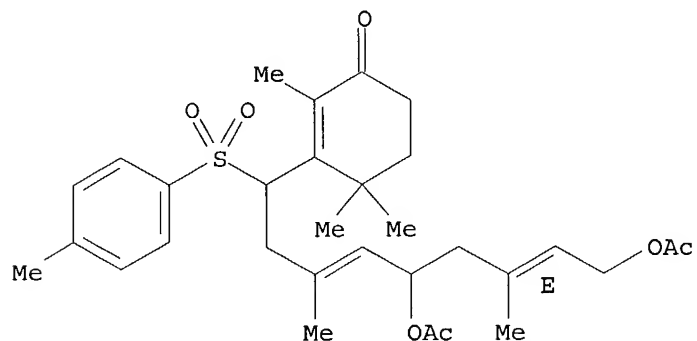


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

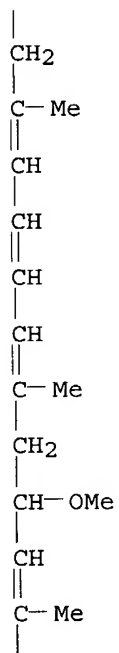
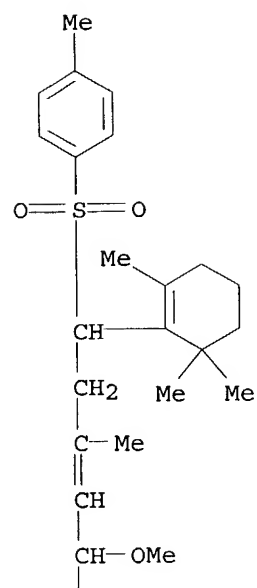
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-  
 4-oxo-, acetate, (9?)-(9CI)  
 MF C31 H42 O7 S

Double bond geometry as described by E or Z.

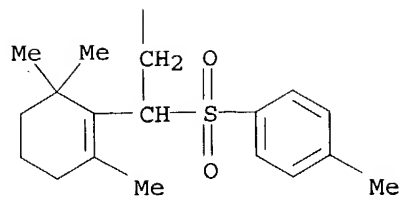


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN  $\beta$ , $\beta$ -Carotene, 7,7',8,8',11,11',12,12'-octahydro-11,11'-dimethoxy-  
 7,7'-bis[(4-methylphenyl)sulfonyl]-, (9?,9'?,13?,13'?,15?)-(9CI)  
 MF C56 H80 O6 S2



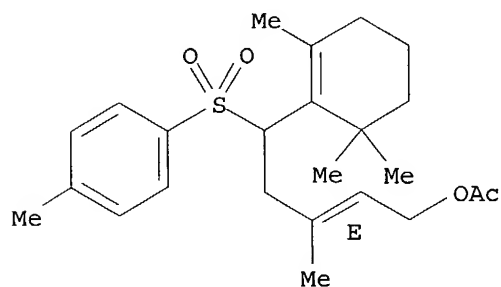




\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, acetate, (2E)- (9CI)  
 MF C24 H34 O4 S

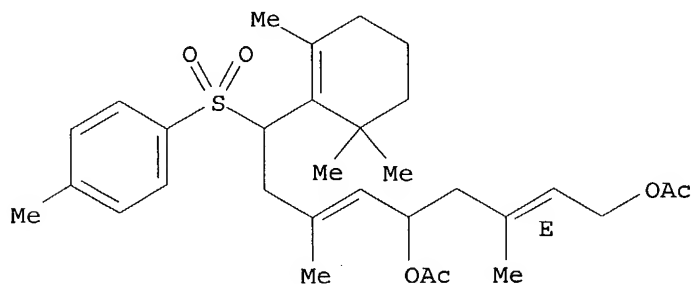
Double bond geometry as shown.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-, acetate, (9?)- (9CI)  
 MF C31 H44 O6 S

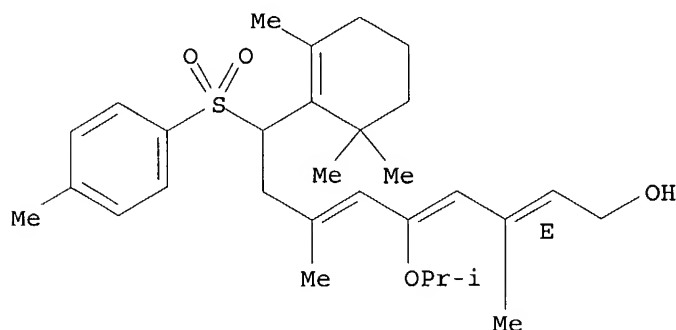
Double bond geometry as described by E or Z.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

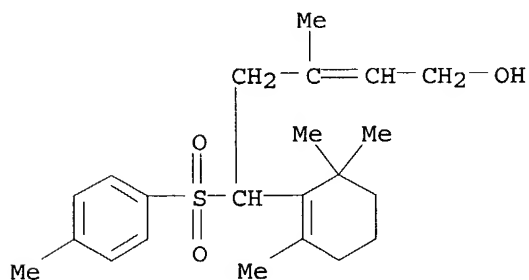
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinol, 7,8-dihydro-11-(1-methylethoxy)-7-[(4-methylphenyl)sulfonyl]-,  
(9?,11?)-(±)-(9CI)  
MF C30 H44 O4 S

Double bond geometry as described by E or Z.



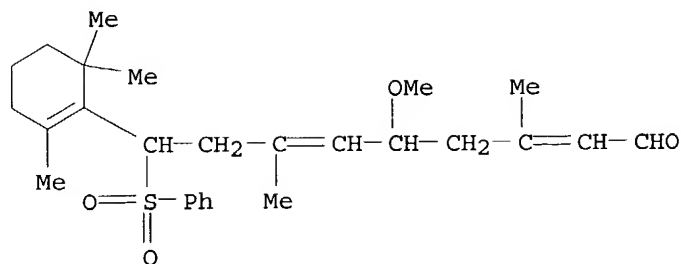
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-(9CI)  
MF C22 H32 O3 S



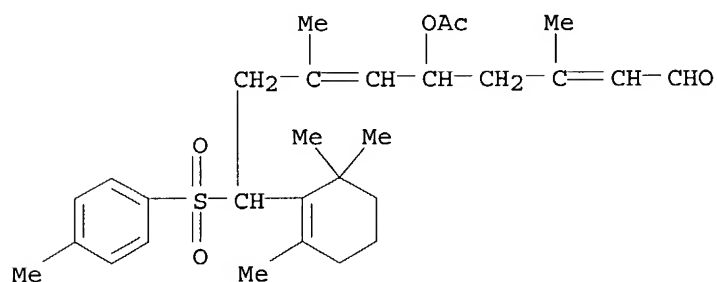
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN 2,6-Nonadienal, 5-methoxy-3,7-dimethyl-9-(phenylsulfonyl)-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-(9CI)  
MF C27 H38 O4 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

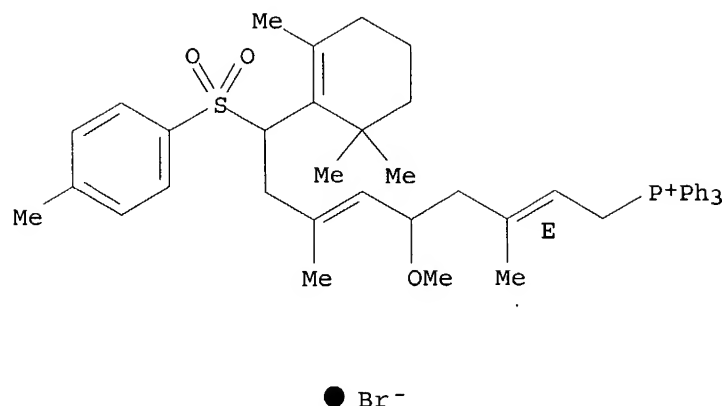
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Retinal, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-  
 , (9Z,13Z)- (9CI)  
 MF C29 H40 O5 S



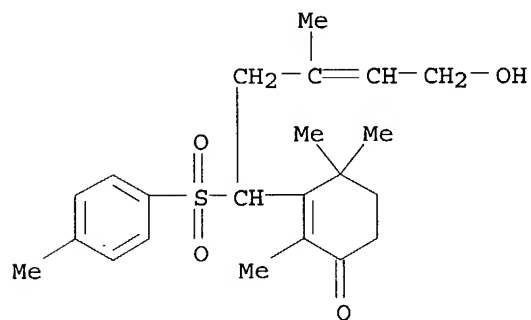
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Phosphonium, [(2E)-5-methoxy-3,7-dimethyl-9-[(4-methylphenyl)sulfonyl]-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,6-nonadienyl]triphenyl-, bromide  
 (9CI)  
 MF C46 H56 O3 P S . Br

Double bond geometry as described by E or Z.



L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN 2-Cyclohexen-1-one, 3-[5-hydroxy-3-methyl-1-[(4-methylphenyl)sulfonyl]-3-pentenyl]-2,4,4-trimethyl- (9CI)  
 MF C22 H30 O4 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Retinol, 7,8,11,12-tetrahydro-11-hydroxy-7-[(4-methylphenyl)sulfonyl]- (9CI)  
 MF C27 H40 O4 S

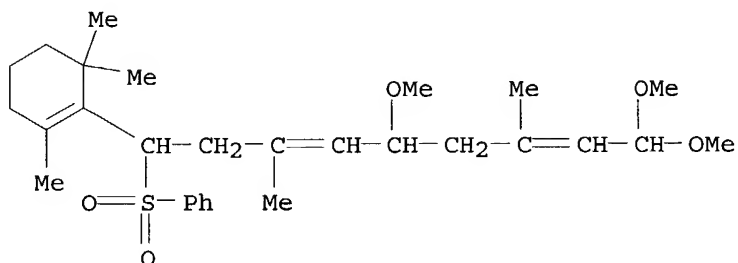
Double bond geometry as shown.

CC1=CC=C(C=C1)S(=O)(=O)C2(C)C=CC(C)(C)C2C3C(C)C(C)C(C)C3C4=CC=CC=C4

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

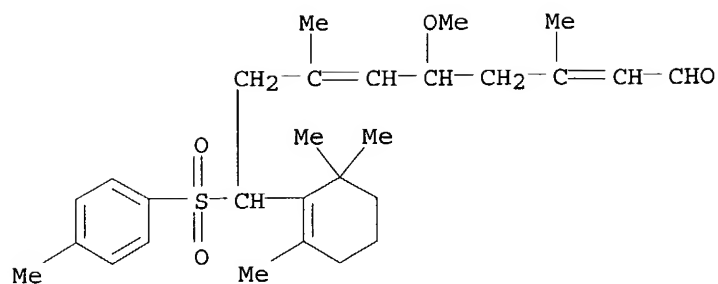
CC1=CC=C(C=C1)S(=O)(=O)C(C2=CC=CC=C2C3(C)C=CC(C)C3)C(C)C=C(C)COCC

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Benzene, [[5,9,9-trimethoxy-3,7-dimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3,7-nonadienyl]sulfonyl]- (9CI)  
MF C29 H44 O5 S



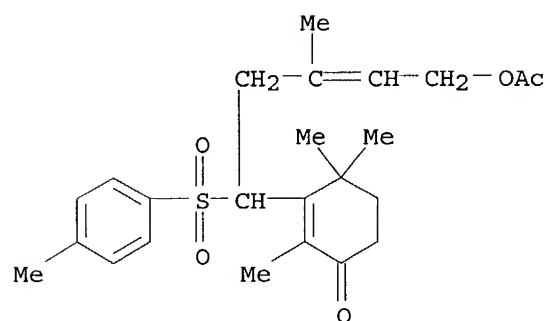
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-  
MF , (9?)- (9CI)  
C29 H42 O5 S

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinal, 7,8,11,12-tetrahydro-11-methoxy-7-[(4-methylphenyl)sulfonyl]-,  
(9?,13?) - (9CI)  
MF C28 H40 O4 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

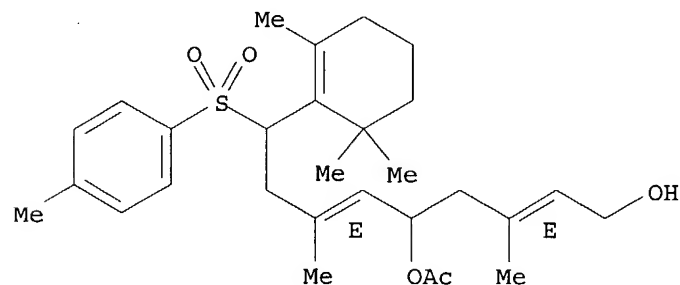
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN 2-Cyclohexen-1-one, 3-[5-(acetyloxy)-3-methyl-1-[(4-methylphenyl)sulfonyl]-3-pentenyl]-2,4,4-trimethyl- (9CI)  
 MF C24 H32 O5 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
 IN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]- (9CI)  
 MF C29 H42 O5 S

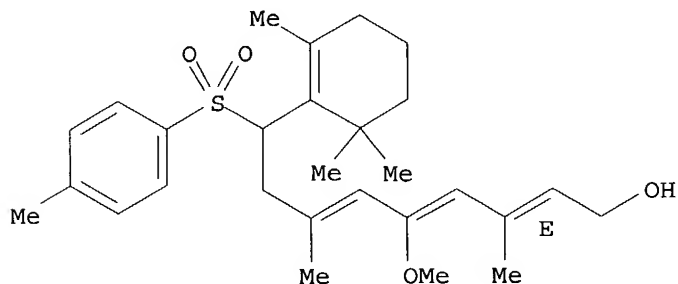
Double bond geometry as shown.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

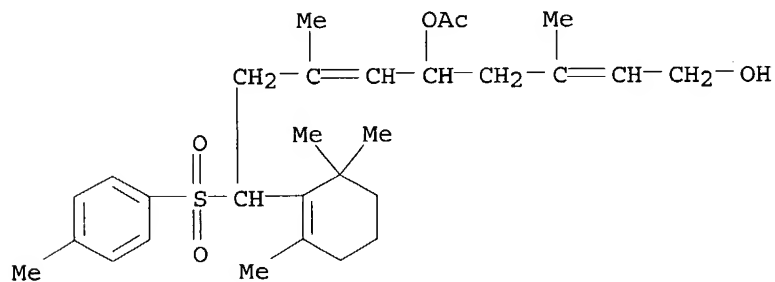
L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinol, 7,8-dihydro-11-methoxy-7-[(4-methylphenyl)sulfonyl]-,  
(9?,11?)-(±)-(9CI)  
MF C28 H40 O4 S

Double bond geometry as described by E or Z.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 32 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-,  
(9ξ,13ξ)-(9CI)  
MF C29 H42 O5 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

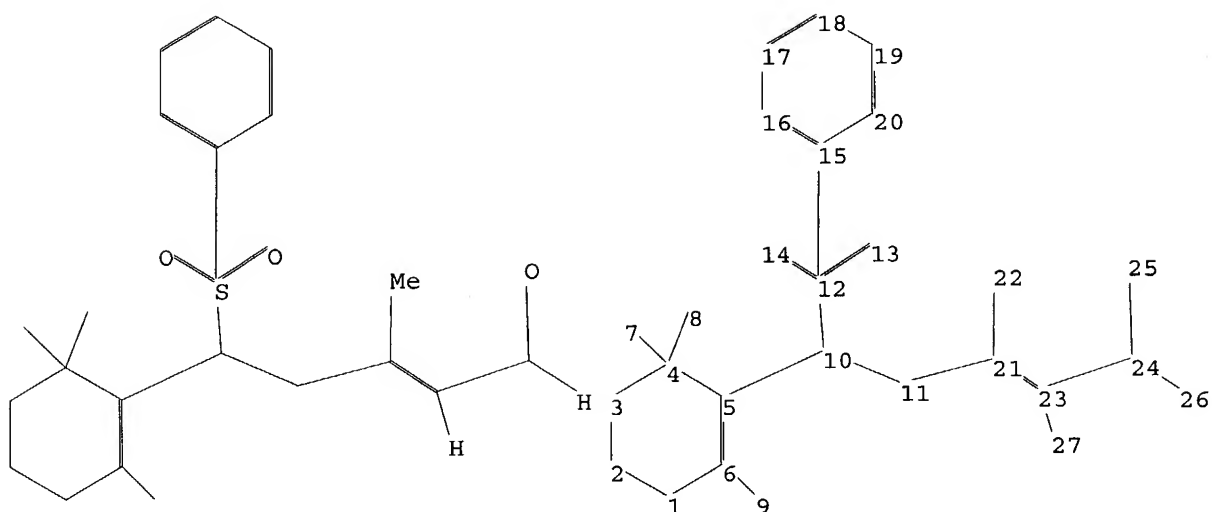
=>

=>

=>

Uploading C:\Program Files\Stnexp\Queries\10687880.str





chain nodes :

7 8 9 10 11 12 13 14 21 22 23 24 25 26 27

ring nodes :

1 2 3 4 5 6 15 16 17 18 19 20

chain bonds :

4-7 4-8 5-10 6-9 10-11 10-12 11-21 12-13 12-14 12-15 21-22 21-23 23-24  
23-27 24-25 24-26

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 15-16 15-20 16-17 17-18 18-19 19-20

exact/norm bonds :

1-2 1-6 2-3 3-4 4-5 5-6 10-12 12-13 12-14 12-15 24-25

exact bonds :

4-7 4-8 5-10 6-9 10-11 11-21 21-22 21-23 23-24 23-27 24-26

normalized bonds :

15-16 15-20 16-17 17-18 18-19 19-20

Match level :

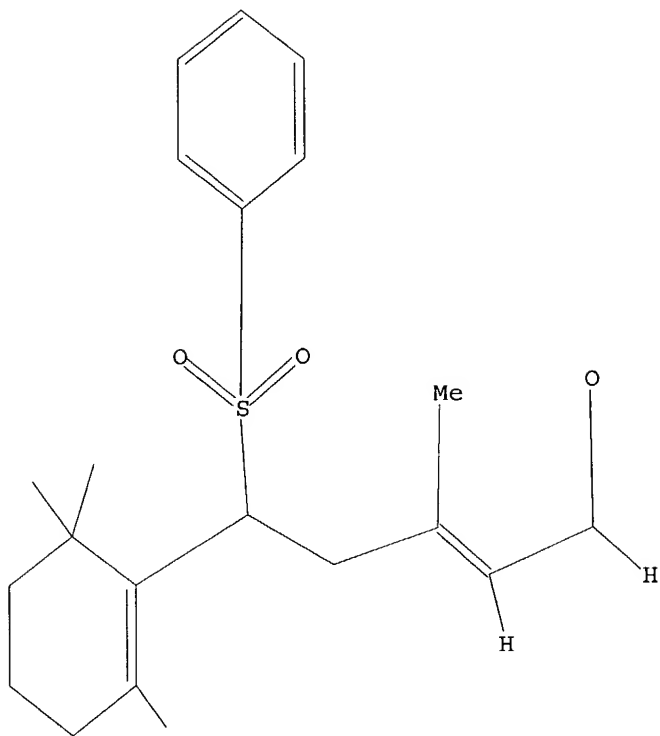
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS 10:CLASS  
11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom  
20:Atom 21:CLASS  
22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS 27:CLASS

L4 STRUCTURE UPLOADED

=> d

L4 HAS NO ANSWERS

L4 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l4

SAMPLE SEARCH INITIATED 15:14:20 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 8 TO ITERATE

100.0% PROCESSED 8 ITERATIONS 0 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 8 TO 329  
PROJECTED ANSWERS: 0 TO 0

L5 0 SEA SSS SAM L4

=> s l5 full

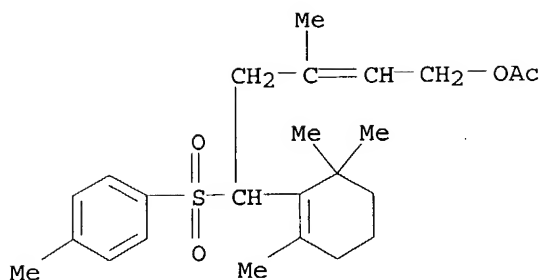
FULL SEARCH INITIATED 15:14:25 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 232 TO ITERATE

100.0% PROCESSED 232 ITERATIONS 26 ANSWERS  
SEARCH TIME: 00.00.01

L6 26 SEA SSS FUL L4

=> d scan

L6 26 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, acetate (9CI)  
MF C24 H34 O4 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

=> s l6 and C24 H34 O4 S/mf

120 C24 H34 O4 S/MF

L7 2 L6 AND C24 H34 O4 S/MF

=> d 1-2

L7 ANSWER 1 OF 2 REGISTRY COPYRIGHT 2004 ACS on STN

RN 639092-21-0 REGISTRY

CN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, acetate, (2E)- (9CI) (CA INDEX NAME)

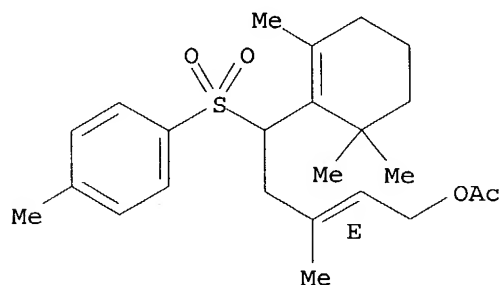
FS STEREOSEARCH

MF C24 H34 O4 S

SR CA

LC STN Files: CA, CAPLUS

Double bond geometry as shown.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L7 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2004 ACS on STN

RN 414871-71-9 REGISTRY

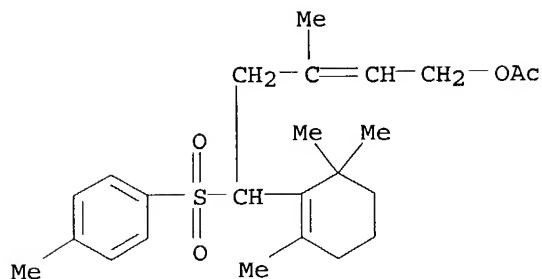
CN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, acetate (9CI) (CA INDEX NAME)

FS 3D CONCORD

MF C24 H34 O4 S

SR CA

LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1907 TO DATE)  
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> fil caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

320.49

320.70

FILE 'CAPLUS' ENTERED AT 15:15:24 ON 06 APR 2004

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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FILE COVERS 1907 - 6 Apr 2004 VOL 140 ISS 15

FILE LAST UPDATED: 5 Apr 2004 (20040405/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l7

L8

3 L7

=> d ibib abs hitstr 1-3

L8 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:19900 CAPLUS

DOCUMENT NUMBER: 140:59803

TITLE: Preparation of arylsulfones and/or trienes as intermediates for retinols

INVENTOR(S): Konya, Naoto; Takahashi, Toshiya; Seko, Shinzo

PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan

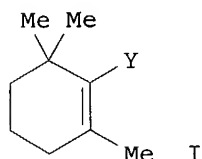
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004002307	A2	20040108	JP 2003-33322	20030212
PRIORITY APPLN. INFO.:			JP 2002-82960	A 20020325
OTHER SOURCE(S):	MARPAT 140:59803			
GI				



AB The arylsulfones and/or trienes (E)-I (Y = CH(SO<sub>2</sub>Ar)CH<sub>2</sub>CMe:CHCH<sub>2</sub>OR<sub>1</sub>, CH:CHCH:CHCH<sub>2</sub>OR<sub>1</sub>; R<sub>1</sub> = H, OH-protective group; Ar = aryl) are prepared by treatment of I (Y = CH<sub>2</sub>SO<sub>2</sub>Ar; Ar = same as above) with (E)-XCH<sub>2</sub>CMe:CHCH<sub>2</sub>OR [(E)-II; R<sub>1</sub>, Ar = same as above; X = halo] in the presence of alkali metal hydroxides. Thus, I (Y = CH<sub>2</sub>SO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>-p) was treated with II (R<sub>1</sub> = Ac; X = Br; E/Z = 98/2) in the presence of KOH to give 77% I (Y, R<sub>1</sub> = same as above; E/Z = 99/1) and 3% I (Y = same as above; R<sub>1</sub> = H; E/Z = 90/10).

IT 639092-21-0P

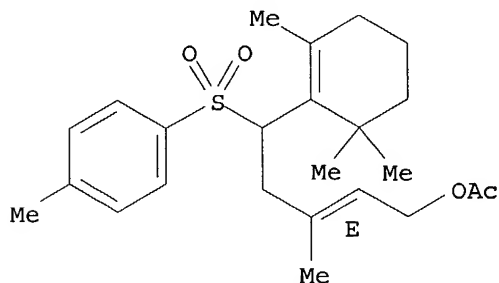
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of sulfones and/or trienes as retinol intermediates by coupling reaction of sulfones with aryl halides in the presence of alkali metal hydroxides)

RN 639092-21-0 CAPLUS

CN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, acetate, (2E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



L8 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:673849 CAPLUS

DOCUMENT NUMBER: 139:197631

TITLE: Preparation of conjugated trienes as intermediates for retinoids and carotenoids

INVENTOR(S): Takahashi, Toshiya; Seko, Shinzo

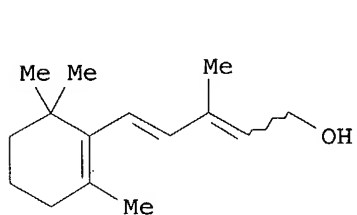
PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

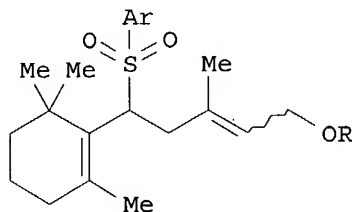
CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003238527	A2	20030827	JP 2002-35058	20020213
PRIORITY APPLN. INFO.:			JP 2002-35058	20020213
OTHER SOURCE(S):			CASREACT 139:197631; MARPAT 139:197631	

GI



I



II

AB The trienes I are prepared by treatment of sulfonic acid derivs. II [Ar = (substituted) aryl; R = H, protective group] with bases. Thus, II (Ar = p-MeC6H5, R = Ac) was treated with KOH in the presence of Bu4N+HSO4- and MeOH to give I, which was acetylated to give 91.2% acetyl ester.

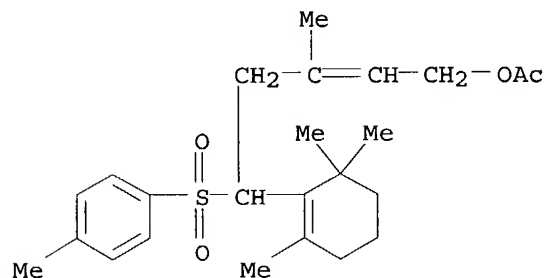
IT 414871-71-9

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of conjugated trienes as intermediates for retinoids and carotenoids)

RN 414871-71-9 CAPLUS

CN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, acetate (9CI) (CA INDEX NAME)



L8 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:314434 CAPLUS

DOCUMENT NUMBER: 136:325708

TITLE: Process for producing retinol and intermediate compounds

INVENTOR(S): Takahashi, Toshiya; Seko, Shinzo; Kimura, Kazutaka; Doi, Noriyuki; Konya, Naoto

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan

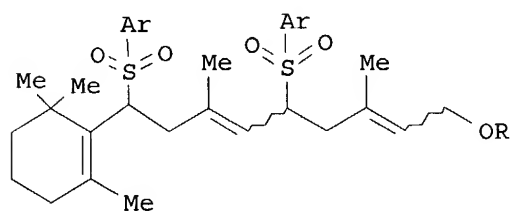
SOURCE: Eur. Pat. Appl., 20 pp.

CODEN: EPXXDW

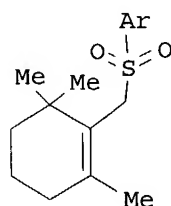
DOCUMENT TYPE: Patent

LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1199303	A1	20020424	EP 2001-124906	20011018
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2002193919	A2	20020710	JP 2001-263139	20010831
JP 2002193918	A2	20020710	JP 2001-263140	20010831
JP 2002193920	A2	20020710	JP 2001-263141	20010831
JP 2002193917	A2	20020710	JP 2001-263142	20010831
US 2002058844	A1	20020516	US 2001-978691	20011018
US 6660888	B2	20031209		
CN 1356317	A	20020703	CN 2001-130363	20011018
PRIORITY APPLN. INFO.:			JP 2000-317546	A 20001018
			JP 2000-317547	A 20001018
			JP 2000-317548	A 20001018
			JP 2000-317549	A 20001018
OTHER SOURCE(S):			CASREACT 136:325708; MARPAT 136:325708	
GI				



I



II

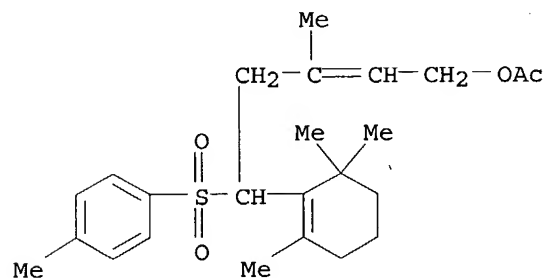
AB The present invention discloses a process for the preparation of a disulfone derivative I [Ar = (substituted) aryl; R = H, protective group; wavy line = single bond and stereochem. relating to double bond bound therewith is E or Z or a mixture thereof], for producing retinol through I. Thus, I (Ar = C<sub>6</sub>H<sub>4</sub>Me-p, R = H) was prepared via a multistep synthetic sequence starting from II and 4-bromo-3-methyl-2-butenyl acetate.

IT 414871-71-9P

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (process for the production of retinol and intermediate compds.)

RN 414871-71-9 CAPLUS

CN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, acetate (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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FULL ESTIMATED COST	15.15	335.85
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
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DICTIONARY FILE UPDATES: 5 APR 2004 HIGHEST RN 671248-82-1

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<http://www.cas.org/ONLINE/DBSS/registryss.html>

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32 HID  
1 HIDS  
L9 33 HID  
(HID OR HIDS)

=> d his

(FILE 'HOME' ENTERED AT 15:11:45 ON 06 APR 2004)

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L2 0 S L1  
L3 32 S L1 FULL  
L4 STRUCTURE UPLOADED  
L5 0 S L4  
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L7 2 S L6 AND C24 H34 O4 S/MF

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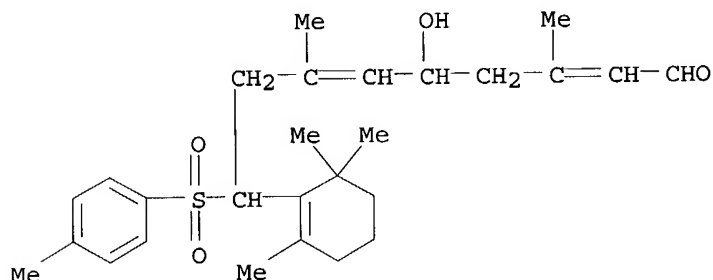
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L9 33 S HID

=> s l6 not l7  
L10 24 L6 NOT L7



=> d scan

L10 24 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN Retinal, 7,8,11,12-tetrahydro-11-hydroxy-7-[(4-methylphenyl)sulfonyl]-,  
(9?,13?)- (9CI)  
MF C27 H38 O4 S



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

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SINCE FILE	TOTAL
ENTRY	SESSION

FULL ESTIMATED COST

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DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION

CA SUBSCRIBER PRICE

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FILE COVERS 1907 - 6 Apr 2004 VOL 140 ISS 15

FILE LAST UPDATED: 5 Apr 2004 (20040405/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l10/prep

17 L10

3130839 PREP/RL

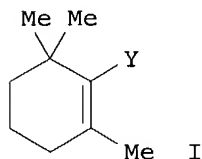
L11 16 L10/PREP  
(L10 (L) PREP/RL)

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L11 ANSWER 1 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 2004:19900 CAPLUS  
DOCUMENT NUMBER: 140:59803  
TITLE: Preparation of arylsulfones and/or trienes as  
intermediates for retinols  
INVENTOR(S): Konya, Naoto; Takahashi, Toshiya; Seko, Shinzo  
PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004002307	A2	20040108	JP 2003-33322	20030212
PRIORITY APPLN. INFO.:			JP 2002-82960	A 20020325
OTHER SOURCE(S):		MARPAT 140:59803		

GI



AB The arylsulfones and/or trienes (E)-I (Y = CH(SO<sub>2</sub>Ar)CH<sub>2</sub>CMe:CHCH<sub>2</sub>OR<sub>1</sub>, CH:CHCH:CHCH<sub>2</sub>OR<sub>1</sub>; R<sub>1</sub> = H, OH-protective group; Ar = aryl) are prepared by treatment of I (Y = CH<sub>2</sub>SO<sub>2</sub>Ar; Ar = same as above) with (E)-XCH<sub>2</sub>CMe:CHCH<sub>2</sub>OR [(E)-II; R<sub>1</sub>, Ar = same as above; X = halo] in the presence of alkali metal hydroxides. Thus, I (Y = CH<sub>2</sub>SO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>-p) was treated with II (R<sub>1</sub> = Ac; X = Br; E/Z = 98/2) in the presence of KOH to give 77% I (Y, R<sub>1</sub> = same as above; E/Z = 99/1) and 3% I (Y = same as above; R<sub>1</sub> = H; E/Z = 90/10).

IT 639092-22-1P

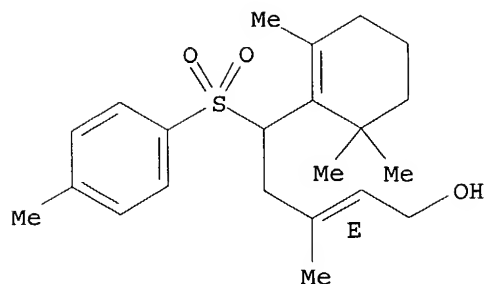
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP**  
(Preparation)

(preparation of sulfones and/or trienes as retinol intermediates by coupling reaction of sulfones with aryl halides in the presence of alkali metal hydroxides)

RN 639092-22-1 CAPLUS

CN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, (2E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



L11 ANSWER 2 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:678781 CAPLUS

DOCUMENT NUMBER: 139:230876

TITLE: Preparation of carotenoids

INVENTOR(S): Seko, Shinzo; Konya, Naoto; Takahashi, Toshiya

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan

SOURCE: PCT Int. Appl., 29 pp.

CODEN: PIXXD2

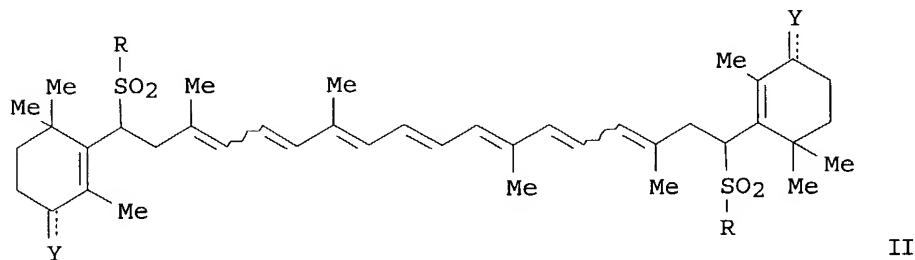
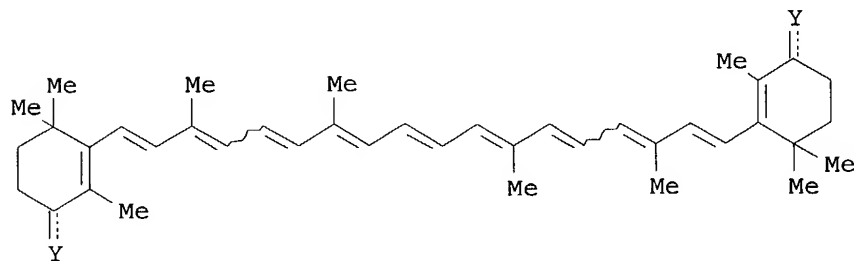
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003070698	A1	20030828	WO 2003-JP1520	20030214
W: CN, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR				
JP 2003238524	A2	20030827	JP 2002-41247	20020219
PRIORITY APPLN. INFO.:			JP 2002-41247	A 20020219
			JP 2002-347572	A 20021129
OTHER SOURCE(S):		CASREACT 139:230876; MARPAT 139:230876		
GI				

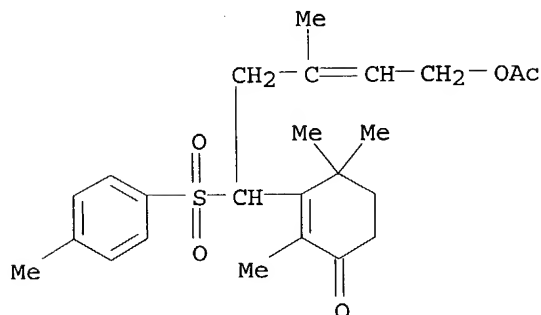


AB Carotenoids I (Y = H, O; and each wavy line represents either of E/Z geometrical isomers or a mixture) are prepared by reaction of disulfone compds. II (R = aryl) with a base. Thus, reaction of II (R = p-tolyl, Y = H) with KOMe in THF at 40° for 4.5 h gave 66% I (Y = H).

IT 591246-52-5P 591246-53-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); **PREP** (**Preparation**); RACT (Reactant or reagent)  
 (preparation of carotenoids)

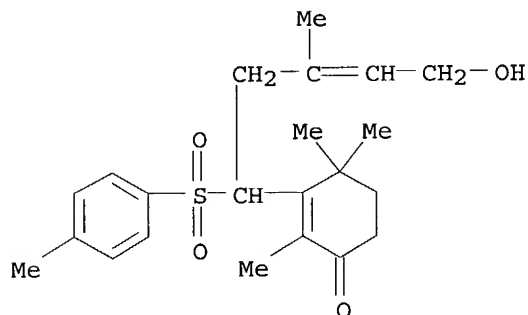
RN 591246-52-5 CAPLUS

CN 2-Cyclohexen-1-one, 3-[5-(acetyloxy)-3-methyl-1-[(4-methylphenyl)sulfonyl]-3-pentenyl]-2,4,4-trimethyl- (9CI) (CA INDEX NAME).



RN 591246-53-6 CAPLUS

CN 2-Cyclohexen-1-one, 3-[5-hydroxy-3-methyl-1-[(4-methylphenyl)sulfonyl]-3-pentenyl]-2,4,4-trimethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 3 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:478987 CAPLUS

DOCUMENT NUMBER: 139:53172

TITLE: Preparation of hydroxysulfones as intermediates for retinols

INVENTOR(S): Takahashi, Toshiya; Seko, Shinzo

PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF

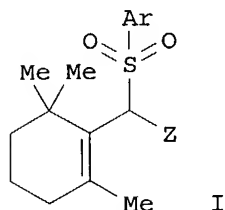
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003176263	A2	20030624	JP 2001-379813	20011213
PRIORITY APPLN. INFO.:			JP 2001-379813	20011213
OTHER SOURCE(S):		MARPAT 139:53172		
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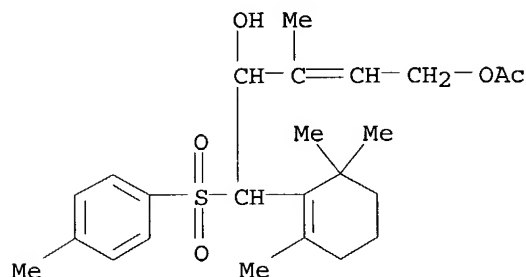
AB Hydroxysulfones I [Ar = (un)substituted aryl; Z = HOCHCMe:CHCH<sub>2</sub>OR<sub>1</sub>; R<sub>1</sub> = H, protecting group] are prepared by treatment of sulfones I (Ar = same as above; Z = H) with HCOCMe:CHCH<sub>2</sub>OR (R = protecting group) in the presence of bases. Thus, I (Ar = 4-MePh, Z = H) was treated with n-BuLi at -60° and condensed with HCOCMe:CHCH<sub>2</sub>OAc at -60° for 3 h to give 51.5% I (Ar = same as above, Z = HOCHCMe:CHCH<sub>2</sub>OAc).

IT 544697-41-8P

RL: SPN (Synthetic preparation); **PREP (Preparation)**  
(preparation of hydroxysulfones as intermediates for retinols)

RN 544697-41-8 CAPLUS

CN 2-Pentene-1,4-diol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 1-acetate (9CI) (CA INDEX NAME)



L11 ANSWER 4 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:314434 CAPLUS

DOCUMENT NUMBER: 136:325708

TITLE: Process for producing retinol and intermediate compounds

INVENTOR(S): Takahashi, Toshiya; Seko, Shinzo; Kimura, Kazutaka; Doi, Noriyuki; Konya, Naoto

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan

SOURCE: Eur. Pat. Appl., 20 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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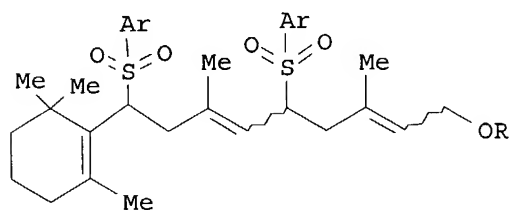
EP 1199303	A1	20020424	EP 2001-124906	20011018
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2002193919	A2	20020710	JP 2001-263139	20010831
JP 2002193918	A2	20020710	JP 2001-263140	20010831
JP 2002193920	A2	20020710	JP 2001-263141	20010831
JP 2002193917	A2	20020710	JP 2001-263142	20010831
US 2002058844	A1	20020516	US 2001-978691	20011018
US 6660888	B2	20031209		
CN 1356317	A	20020703	CN 2001-130363	20011018

PRIORITY APPLN. INFO.:

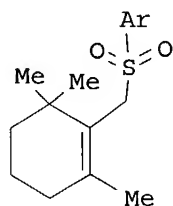
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JP 2000-317547	A	20001018
JP 2000-317548	A	20001018
JP 2000-317549	A	20001018

OTHER SOURCE(S): CASREACT 136:325708; MARPAT 136:325708

GI



I



II

AB The present invention discloses a process for the preparation of a disulfone derivative I [Ar = (substituted) aryl; R = H, protective group; wavy line = single bond and stereochem. relating to double bond bound therewith is E or Z or a mixture thereof], for producing retinol through I. Thus, I (Ar = C<sub>6</sub>H<sub>4</sub>Me-p, R = H) was prepared via a multistep synthetic sequence starting from II and 4-bromo-3-methyl-2-butenyl acetate.

IT 414871-72-0P 414871-74-2P

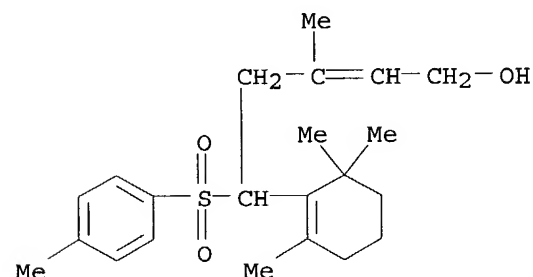
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP

(Preparation)

(process for the production of retinol and intermediate compds.)

RN 414871-72-0 CAPLUS

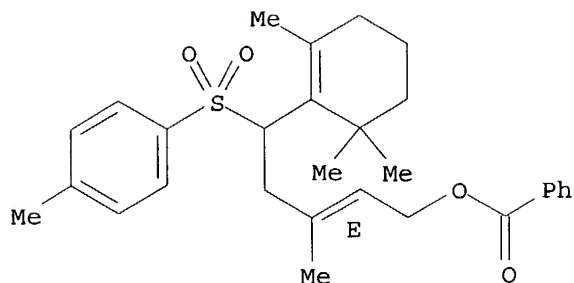
CN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)- (9CI) (CA INDEX NAME)



RN 414871-74-2 CAPLUS

CN 2-Penten-1-ol, 3-methyl-5-[(4-methylphenyl)sulfonyl]-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, benzoate, (2E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 5 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:136074 CAPLUS

DOCUMENT NUMBER: 136:183966

TITLE: Vitamin A related compounds and process for producing the same

INVENTOR(S): Takahashi, Toshiya; Seko, Shinzo; Miki, Takashi

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan

SOURCE: U.S., 13 pp., Cont.-in-part of U.S. Ser. No. 138,894, abandoned.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

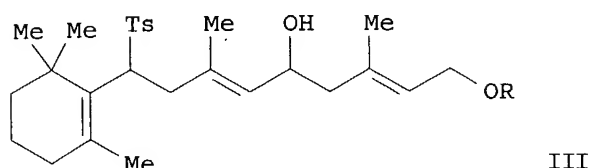
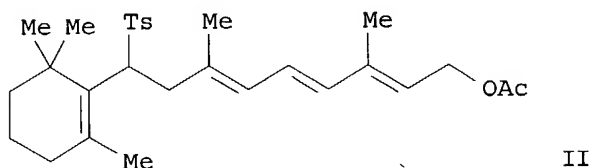
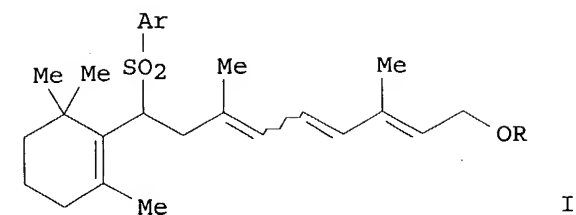
FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6348622	B1	20020219	US 2000-500998	20000209
JP 11222478	A2	19990817	JP 1998-23416	19980204
JP 11130730	A2	19990518	JP 1998-238574	19980825
JP 11222479	A2	19990817	JP 1998-300934	19981022
JP 11236356	A2	19990831	JP 1998-350269	19981209
JP 11236357	A2	19990831	JP 1998-350270	19981209
JP 11315065	A2	19991116	JP 1999-11742	19990120
PRIORITY APPLN. INFO.:			JP 1997-228195	A 19970825
			JP 1997-292314	A 19971024
			JP 1997-341270	A 19971211
			JP 1997-341271	A 19971211
			JP 1998-13887	A 19980127
			JP 1998-23416	A 19980204
			US 1998-138894	B2 19980824

OTHER SOURCE(S): CASREACT 136:183966; MARPAT 136:183966

GI



AB Vitamin A intermediates , e.g. I [Ar = (substituted) aryl; R = H, protective group], were prepared as intermediates for preparation of vitamin A related compds. Thus, II (Ts = p-methylphenylsulfonyl), prepared by dehydration of alc. III with  $\text{TiCl}_4$ , was treated with potassium methoxide to give all-trans retinol. The preparation of III was described.

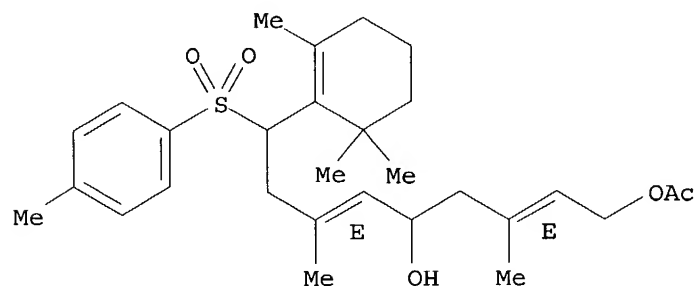
IT 221115-78-2P 221115-80-6P

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)  
(preparation of vitamin A related compds.)

RN 221115-78-2 CAPLUS

CN Retinol, 7,8,11,12-tetrahydro-11-hydroxy-7-[(4-methylphenyl)sulfonyl]-, 15-acetate (9CI) (CA INDEX NAME)

Double bond geometry as shown.

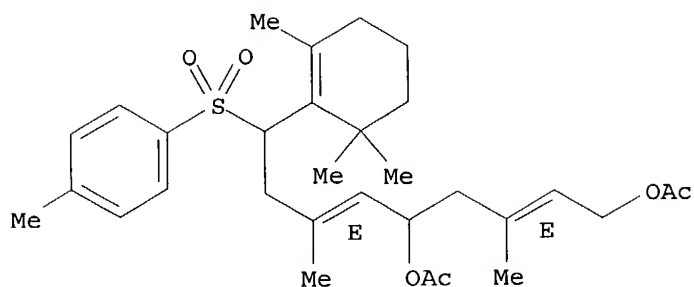


RN 221115-80-6 CAPLUS

CN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-, acetate (9CI) (CA INDEX NAME)

Double bond geometry as shown.





IT 221115-81-7P

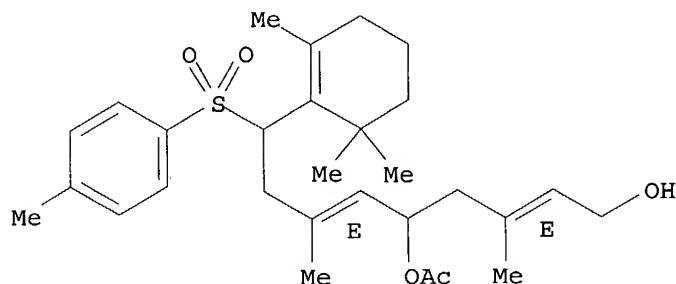
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP**  
(Preparation)

(preparation of vitamin A related compds.)

RN 221115-81-7 CAPLUS

CN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-  
(9CI) (CA INDEX NAME)

Double bond geometry as shown.



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 6 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:703438 CAPLUS

DOCUMENT NUMBER: 135:257035

TITLE: Preparation of arylsulfones by coupling reaction

INVENTOR(S): Takahashi, Toshiya; Konya, Naoto; Seko, Shinzo

PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001261634	A2	20010926	JP 2000-78143	20000321
PRIORITY APPLN. INFO.:			JP 2000-78143	20000321

OTHER SOURCE(S): CASREACT 135:257035; MARPAT 135:257035

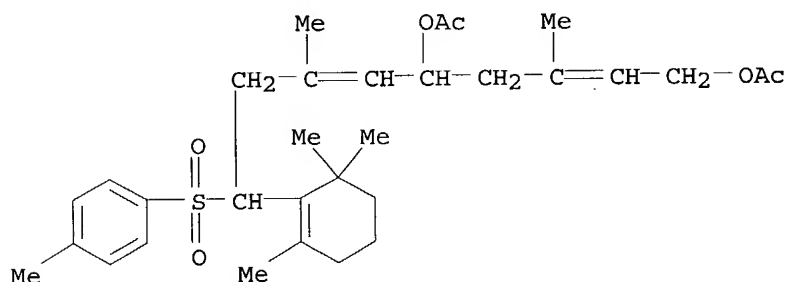
AB Title compds. YCH(SO<sub>2</sub>Ar)CH<sub>2</sub>CMe:CHCH(OR<sub>2</sub>)CH<sub>2</sub>CMe:CHCH<sub>2</sub>OR<sub>1</sub> [Y = 2,6,6-trimethyl-1-cyclohexen-1-yl; CMe<sub>2</sub>:CHCH<sub>2</sub>CH<sub>2</sub>CMe:CH; Ar = (un)substituted aryl; R<sub>1</sub>, R<sub>2</sub> = OH-protecting group] or YCH(SO<sub>2</sub>Ar)CH<sub>2</sub>CMe:CHCH:CHCMe:CHCH<sub>2</sub>OR<sub>1</sub> (Y, Ar, R<sub>1</sub> = same as above) are prepared by treating YCH<sub>2</sub>SO<sub>2</sub>Ar (Ar, Y = same as above) with bases to move equilibrium to arylsulfone anion side and coupling reaction with X<sub>1</sub>CH<sub>2</sub>CMe:CHCH<sub>2</sub>CH<sub>2</sub>CMe:CHCH<sub>2</sub>OR<sub>1</sub> (Z = X<sub>2</sub>, OR<sub>2</sub>; X<sub>1</sub>, X<sub>2</sub> = halo, R<sub>1</sub>, R<sub>2</sub> = same

as above) at a temperature lower than anionization temperature

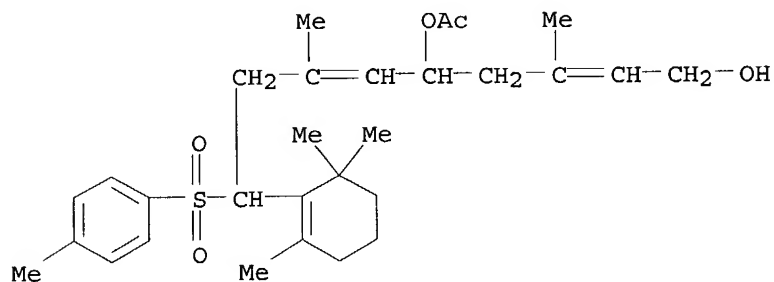
2,6,6-Trimethyl-1-(p-tolylsulfonylmethyl)cyclohex-1-ene was treated with KOBu-tert in DMF at -40° for 5 min and reacted with BrCH<sub>2</sub>CMe:CHCH(OAc)CH<sub>2</sub>CMe:CHCH<sub>2</sub>OAc at -60° for 2 h to give 97.5% QCH<sub>2</sub>CMe:CHCH(OAc)CH<sub>2</sub>CMe:CHCH<sub>2</sub>OAc [Q = (2,6,6-trimethylcyclohexen-1-yl) (p-tolylsulfonyl)methyl] and QCH<sub>2</sub>CMe:CHCH(OAc)CH<sub>2</sub>CMe:CHCH<sub>2</sub>OH (Q = same as above).

IT 361342-14-5P 361342-15-6P  
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP**  
**(Preparation)**  
 (preparation of arylsulfonylalkenes by coupling reaction of arylsulfones with allyl halides)

RN 361342-14-5 CAPLUS  
 CN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-, acetate, (9ξ,13ξ)- (9CI) (CA INDEX NAME)



RN 361342-15-6 CAPLUS  
 CN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-, (9ξ,13ξ)- (9CI) (CA INDEX NAME)



L11 ANSWER 7 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:279448 CAPLUS

DOCUMENT NUMBER: 134:295969

TITLE: Process for the production of beta-carotene and intermediate compounds

INVENTOR(S): Konya, Naoto; Seko, Shinzo

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan

SOURCE: Eur. Pat. Appl., 15 pp.  
 CODEN: EPXXDW

DOCUMENT TYPE: Patent

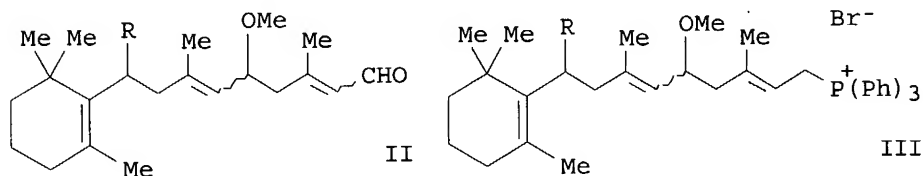
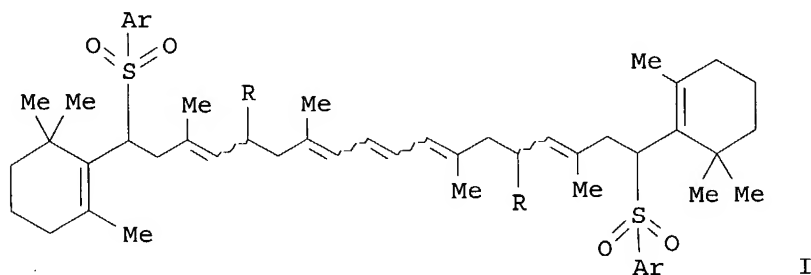
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1092709	A1	20010418	EP 2000-121975	20001009
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001114756	A2	20010424	JP 1999-289312	19991012
CN 1291608	A	20010418	CN 2000-130453	20001010
US 6355841	B1	20020312	US 2000-685030	20001010
PRIORITY APPLN. INFO.:			JP 1999-289312	A 19991012
OTHER SOURCE(S):			CASREACT 134:295969; MARPAT 134:295969	
GI				



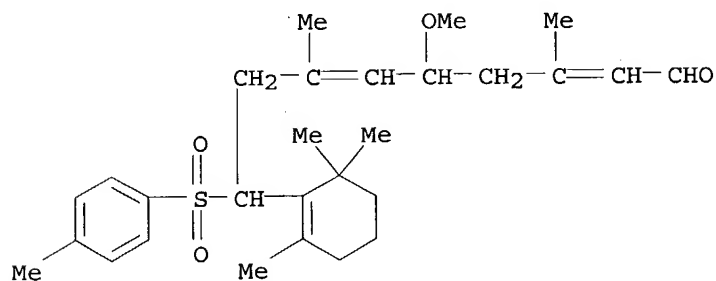
AB The present invention discloses a process for the preparation of a sulfone derivative (I; Ar = aryl; R = oxyalkyl; wavy line = single bond and stereochem. relating to a double bond bound therewith is E or Z or a mixture thereof) and a process for producing intermediate compds. and  $\beta$ -carotene. Thus, sulfone derivative I (Ar = p-tolyl, R = OMe) was prepared by reacting an aldehyde derivative II (R = p-toluenesulfonyl) with a phosphonium salt III (R = p-toluenesulfonyl) (also prepared) in the presence of a base.

IT 334478-83-0P 334478-85-2P 334478-87-4P

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(process for the production of beta-carotene and intermediate compds.)

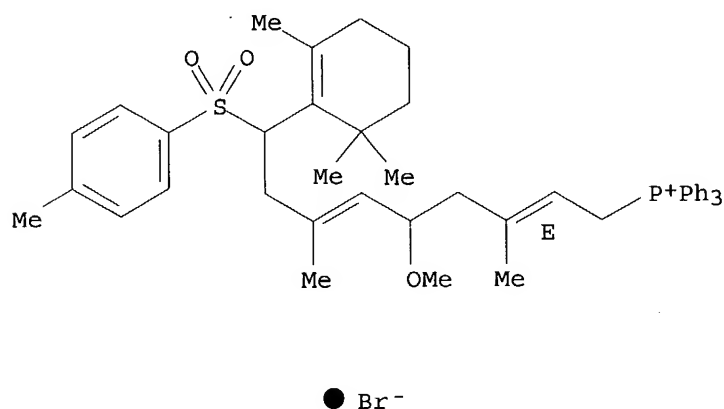
RN 334478-83-0 CAPLUS

CN Retinal, 7,8,11,12-tetrahydro-11-methoxy-7-[(4-methylphenyl)sulfonyl]-, (9?,13?)- (9CI) (CA INDEX NAME)



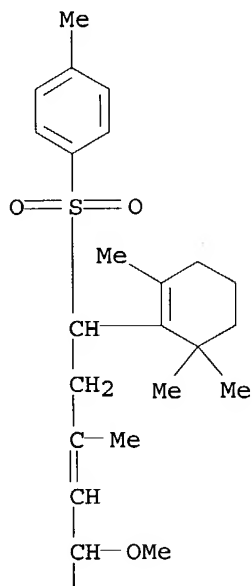
RN 334478-85-2 CAPLUS  
 CN Phosphonium, [(2E)-5-methoxy-3,7-dimethyl-9-[(4-methylphenyl)sulfonyl]-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,6-nonadienyl]triphenyl-, bromide  
 (9CI) (CA INDEX NAME)

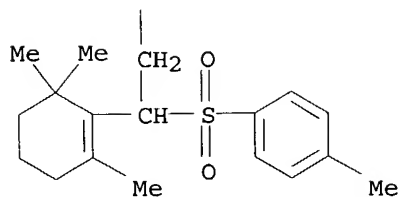
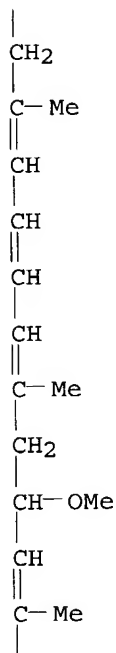
Double bond geometry as described by E or Z.



RN 334478-87-4 CAPLUS  
 CN β,β-Carotene, 7,7',8,8',11,11',12,12'-octahydro-11,11'-dimethoxy-7,7'-bis[(4-methylphenyl)sulfonyl]-, (9Z,9'Z,13Z,13'Z,15Z)- (9CI) (CA INDEX NAME)

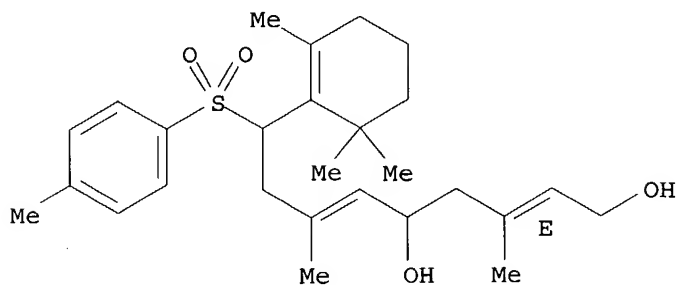
PAGE 1-A



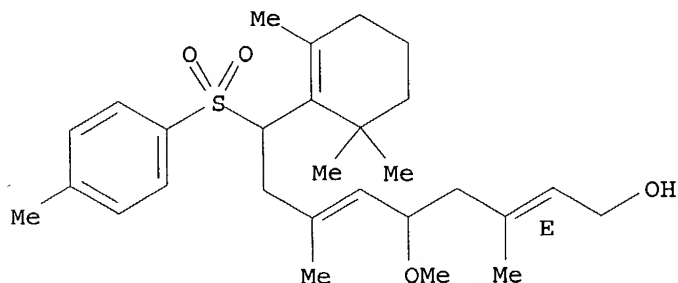


IT 251911-99-6P 334478-81-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (process for the production of beta-carotene and intermediate compds.)  
 RN 251911-99-6 CAPLUS  
 CN Retinol, 7,8,11,12-tetrahydro-11-hydroxy-7-[(4-methylphenyl)sulfonyl]-,  
 (9?)-(9CI) (CA INDEX NAME)

Double bond geometry as described by E or Z.



Double bond geometry as described by E or Z.



L11 ANSWER 8 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN

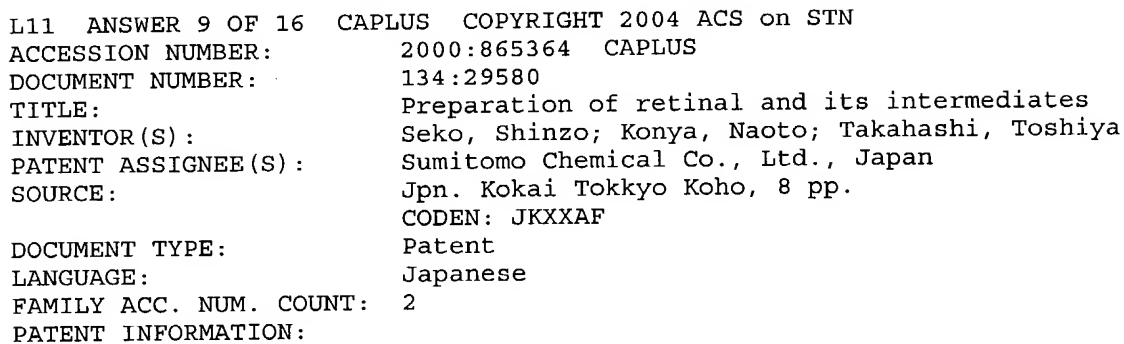
PATENT INFORMATION:

OTHER SOURCE(S) : CASREACT 134:29581

IT 224966-76-1P

RN 224966-76-1 CAPLUS

Double bond geometry as described by E or Z.



L11 ANSWER 9 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 2000:865364 CAPLUS  
DOCUMENT NUMBER: 134:29580  
TITLE: Preparation of retinal and its intermediates  
INVENTOR(S): Seko, Shinzo; Konya, Naoto; Takahashi, Toshiya  
PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PRIORITY APPLN. INFO.:	JP 1999-156396	A	19990603
	JP 1999-156397	A	19990603

OTHER SOURCE(S) : CASREACT 134:29580

AB Title compound is prepared by methylation of 1,5-dihydroxy-3,7-dimethyl-9-(2,6,6-trimethylcyclohexen-1-yl)-2,6,8-nonatriene (I), oxidation of 1-hydroxy-5-methoxy-3,7-dimethyl-9-(2,6,6-trimethylcyclohexen-1-yl)-2,6,8-nonatriene (II), and elimination of 5-methoxy-3,7-dimethyl-9-(2,6,6-trimethylcyclohexen-1-yl)-nona-2,6,8-trienal. I is reacted with MeOH in the presence of p-MeC6H4SO3H at 0° for 3 h to give 85% II, which was oxidized in the presence of MnO2 in CH2Cl2 at room temperature for 24 h and reacted in the presence of DBU in THF under reflux for 6 h to give retinal.

IT 224966-76-1P

RL: RCT (Reactant); SPN (Synthetic preparation); **PREP**  
(**Preparation**); RACT (Reactant or reagent)

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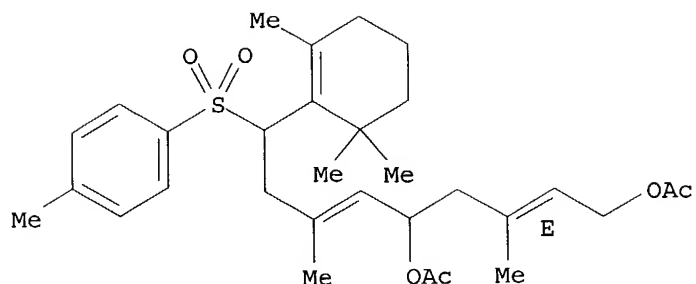
preparation); RAC1 (Reactant or Reagent;
(preparation of retinal by methoxylation of hydroxycyclohexenylnonatriene,
oxidation, and elimination)

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RN 224966-76-1 CAPLUS

Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-  
acetate, (9?)-(9CI) (CA INDEX NAME)

Double bond geometry as described by E or Z.



L11 ANSWER 10 OF 16 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:290995 CAPLUS

DOCUMENT NUMBER: 132:293897

TITLE: Process for the preparation of retinol and intermediates therefor

INVENTOR(S): Takahashi, Toshiya; Furutani, Atsushi; Seko, Shinzo

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan

SOURCE: PCT Int. Appl., 19 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000024713	A1	20000504	WO 1999-JP5748	19991019
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
JP 2000198770	A2	20000718	JP 1999-285397	19991006
AU 9961244	A1	20000515	AU 1999-61244	19991019
EP 1125921	A1	20010822	EP 1999-947956	19991019
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

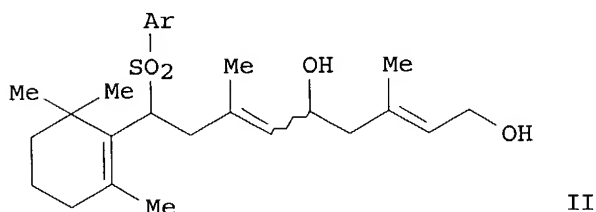
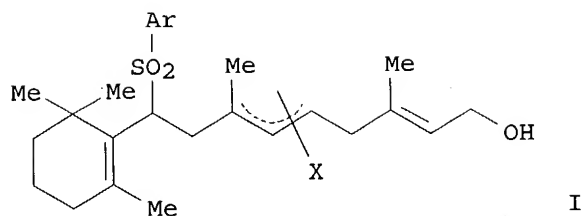
PRIORITY APPLN. INFO.: JP 1998-303851 A 19981026

WO 1999-JP5748 W 19991019

OTHER SOURCE(S): CASREACT 132:293897; MARPAT 132:293897

GI





AB Described is a process for easily preparing retinol useful in the fields of drugs, feed additives and food additives, by reacting a halogenated sulfone derivative represented by general formula (I; wherein Ar is optionally substituted aryl; and X is halogeno) with a base for elimination reaction to olefin. Such intermediates can be easily prepared by reacting a diol compound represented by general formula (II; wherein Ar is as defined above), which can be derived from a relatively inexpensive raw material, with a Group 4 transition metal halide for halogenation without protecting the primary hydroxyl group. Thus, 0.095 g  $\text{TiCl}_4$  was added dropwise to a solution of 0.46 g 1,5-Dihydroxy-3,7-dimethyl-9-(2,6,6-trimethylcyclohexen-1-yl)-9-((4-methylphenyl)sulfonyl)nona-2,6-diene (III) in 1,2-dimethoxyethane at room temperature and stirred at room temperature for 12 h and

50° for 4 h to give a crude mixture of 8 diastereoisomers containing 1-Hydroxy-5-chloro-3,7-dimethyl-9-(2,6,6-trimethylcyclohexen-1-yl)-9-((4-methylphenyl)sulfonyl)nona-2,6-diene as the main component in 95% yield. The crude mixture (676 mg) was dissolved in cyclohexane, treated with 988 mg MeOK and stirred at 40° for 7 h to give crude retinol which was acetylated by acetic anhydride in pyridine in the presence of 4-dimethylaminopyridine at room temperature for 18 h to give retinyl acetate in 70% yield from III.

IT 224966-76-1P

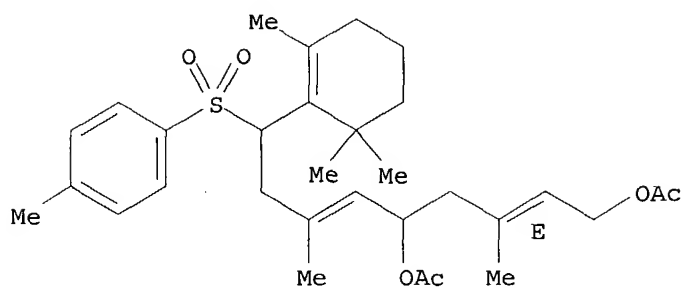
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of retinol by halogenation diol sulfone derivative and olefination of halogenated sulfone derivative)

RN 224966-76-1 CAPLUS

CN Retinol, 11-(acetyloxy)-7,8,11,12-tetrahydro-7-[(4-methylphenyl)sulfonyl]-, acetate, (9?)-(9CI) (CA INDEX NAME)

Double bond geometry as described by E or Z.



REFERENCE COUNT:

6

THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT